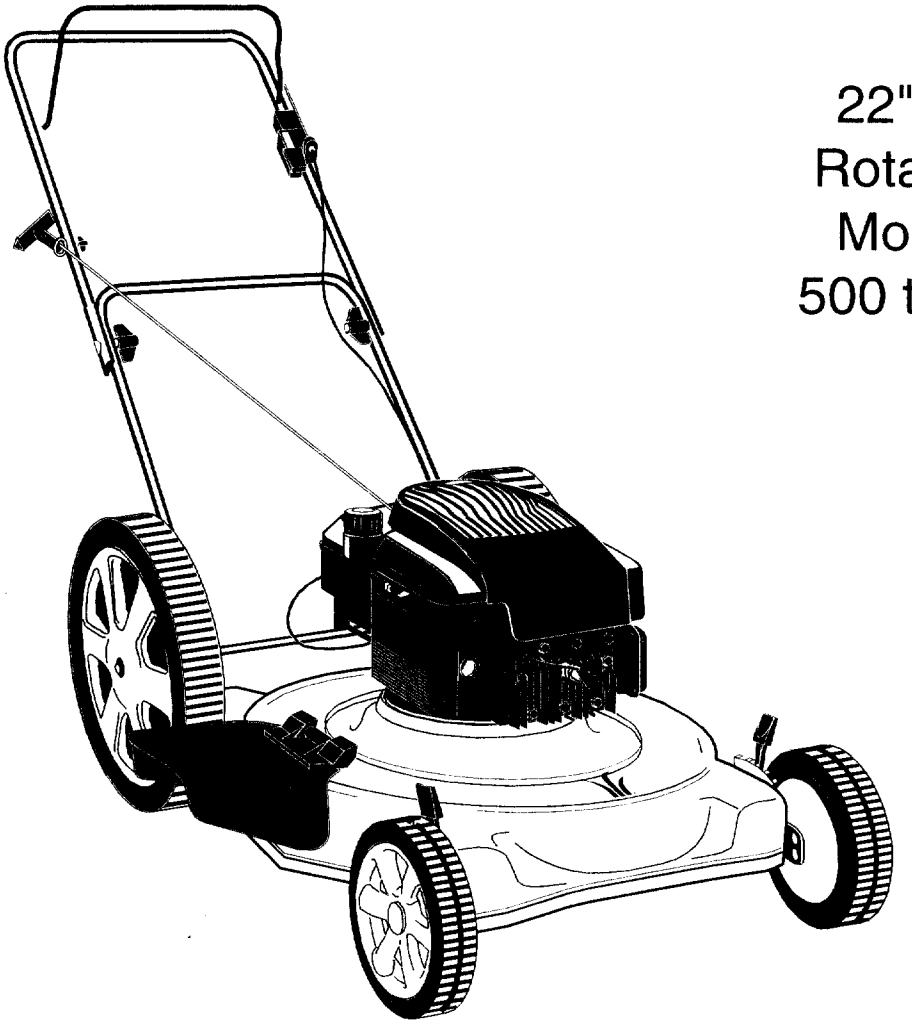
YARD MACHINES by MTD



22" Hi-Wheel Rotary Mowers Model Series 500 through 509

MTD For A Growing World.

IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

PRINTED IN U.S.A.

FORM NO. 770-10109
(10/98)

SECTION 1: FINDING YOUR MODEL NUMBER

This Operator's Manual is an important part of your new walk behind. It will help you assemble, prepare and maintain your walk behind. Please read and understand what it says.

Before you start to prepare your walk behind for its first use, please locate the model plate and copy the information from it in this Operator's Manual. The information on the model plate is very important if you need help from your dealer or the MTD customer support department.

- Every walk behind has a model plate. You can locate it by standing behind the unit in the operating position and looking down at the rear of the deck. An example of the model plate is shown in Figure 1.

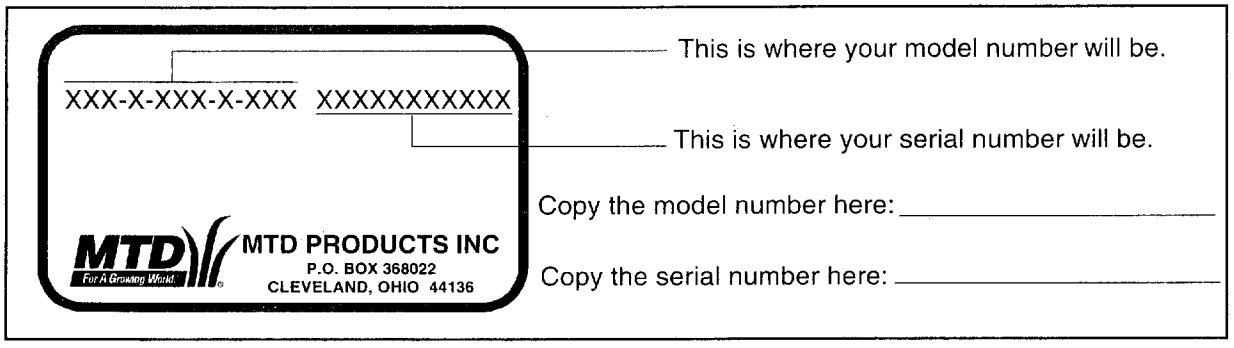


Figure 1

SECTION 2: CALLING CUSTOMER SUPPORT

- **LOCATE YOUR MODEL NUMBER AND SERIAL NUMBER** — Record this information in the space provided. To find your unit's specific model number and serial number, see SECTION 1: FINDING YOUR MODEL NUMBER.
- If you are having difficulty assembling this product or if you have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Support Department.
- Customer Support can be reached by dialing: **1- (330) 220-4MTD (4683)**
  or
  1- (800)-800-7310
- Please have your model number and serial number ready when you call.
- Although both numbers are important, you will be asked to enter only your ***serial*** number before your call can be processed.

SECTION 3: IMPORTANT SAFE OPERATION PRACTICES

This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate your lawn mower. Failure to comply with these instructions may result in personal injury. When you see this symbol—**heed its warning.**

DANGER: Your lawn mower was built to be operated **according to the rules for safe operation in this manual.** As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. **If the operator violates any of these rules, he/she may cause serious injury to himself/herself or others.**

1. GENERAL OPERATION

- Read this owner's guide carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manual(s) before operation. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Your rotary mower is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times. Your unit has been designed to perform one job: to mow grass. Do not use it for any other purpose.
- Never allow children under 14 years old to operate a power mower. Children 14 years old and over should only operate mower under close parental supervision. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your mower.
- Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower to help prevent blade contact or thrown object injury. Although the area of operation should be completely cleared of foreign objects, an object may have been overlooked and could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area.
- Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys and other foreign objects which could be picked up and thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. To help avoid a thrown object's injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation.
- Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine in any direction.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Shirts and pants that cover the arms and legs and steel-toed shoes are recommended. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
- Do not put hands or feet near or under rotating parts. Keep clear of discharge opening at all times as the rotating blade can cause injury.
- Many injuries occur as a result of the mower being pulled over the foot during a fall. Do not hang on to the mower if you are falling; release the handle immediately.
- Never pull the mower toward you while you are walking. If you must back the mower away from a wall or obstruction first look down and behind, and then follow these steps:
- Step back from the mower to fully extend your arms.
- Be sure you are well balanced with sure footing.
- Pull the mower back slowly, no more than half way toward you.
- Repeat these steps as needed.
- Do not operate the mower while under the influence of alcohol or drugs.
- The blade control handle is a safety device. Never attempt to bypass its operation. Doing so makes the safety device inoperative and may result in personal injury through contact with the rotating blade. The blade control handle must operate easily in both directions and automatically return to the disengaged position when released.
- Never operate the mower in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. Keep a firm hold on the handle and walk, never run. Mow only in daylight or in good artificial light.
- Stop the blade when crossing gravel drives, walks or roads.
- If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher or unclogging the chute. The cutting blade continues to rotate for a few seconds after the engine is shut off. Never place any part of the body in the blade area until you are sure the blade has stopped rotating.
- Never operate mower without proper guards, grass catcher, plates or other safety protective devices in place.
- Muffler and engine become hot and can cause a burn. Do not touch.
- Only use accessories approved for this machine by the manufacturer. Read, understand, and follow all instructions provided with the approved accessory.
- If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer for assistance.

2. SLOPE OPERATION

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees as shown on the slope gauge, do not operate this

DO:

- Mow across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, hidden objects, or bumps. Tall grass can hide obstacles.
- Always be sure of your footing. A slip and fall can cause serious personal injury. If you feel you are losing your balance release the blade control handle immediately and the blade will stop in less than 3 seconds.

DO NOT:

- Do not mow near drop-offs, ditches or embankments. The operator could lose footing or balance.
- Do not mow slopes greater than 15 degrees as shown on the slope gauge.
- Do not mow on wet grass. Reduced footing could cause slipping.

3. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the mower and the mowing activity. Never assume that children will remain where you last saw them.

- Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
- Be alert and turn mower off if a child enters the area.
- Before and while moving backwards, look behind and down for small children.
- Never allow children under age 14 to operate the mower.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision of a child or hazard.

4. SERVICE

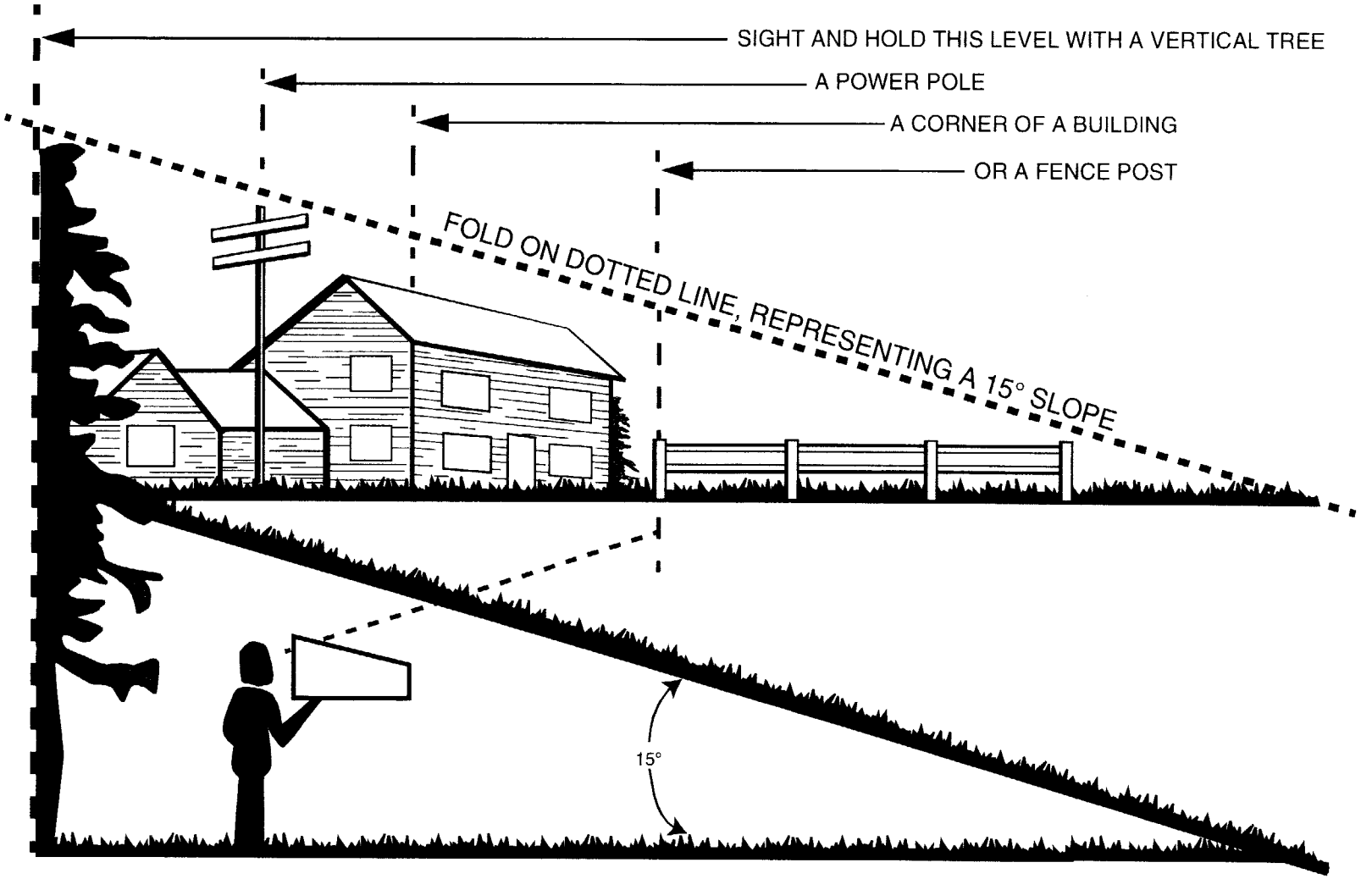
- Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
- Use only an approved gasoline container.
- Never remove gas cap or add fuel while the engine is running. Allow engine to cool at least two minutes before refueling.
- Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never refuel machine indoors because flammable vapors will accumulate in the area.
- Never store the machine or fuel container inside where there is an open flame or spark such as a gas water heater, space heater, or furnace.
- Never run an engine inside a closed area.
- To reduce fire hazard, keep mower free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow mower to cool at least 5 minutes before storing.
- Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
- Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., bent, cracked). Replace with blade which meets original equipment specifications.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly.
- After striking a foreign object, stop the engine, remove the wire from the spark plug, and thoroughly inspect the mower for any damage. Repair the damage before starting and operating the mower.
- Never attempt to make a wheel or cutting height adjustment while the engine is running.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace with manufacturer's recommended parts, when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Do not change the engine governor setting or overspeed the engine. Excessive engine speeds are dangerous.

Your Responsibility

- Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.
- Following are representations of the safety labels on your lawn mower. Maintain safety while operating the mower.

USE THIS PAGE AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.

SECTION 4: SLOPE GUAGE



WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.
Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

SECTION 5: UNPACKING

Removing Unit From Carton

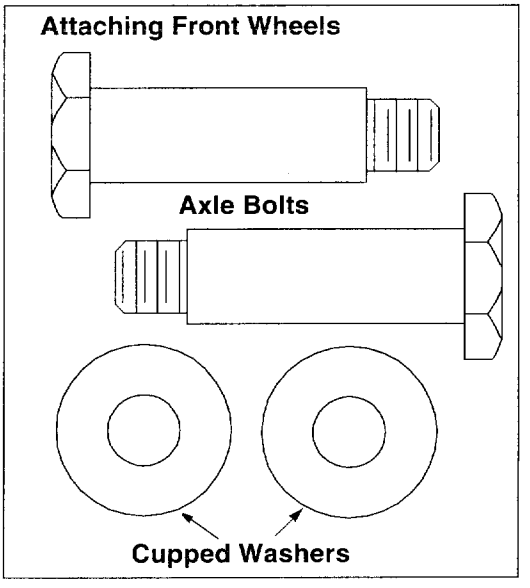
- Remove staples, break glue on top flaps, or cut tape at carton end and peel along top flap to open carton.
- Remove loose parts if included with unit (i.e., owner's manual, etc.).
- Cut along dotted lines and lay carton down flat. Remove packing material.
- Roll or slide unit out of carton. Check carton thoroughly for loose parts.

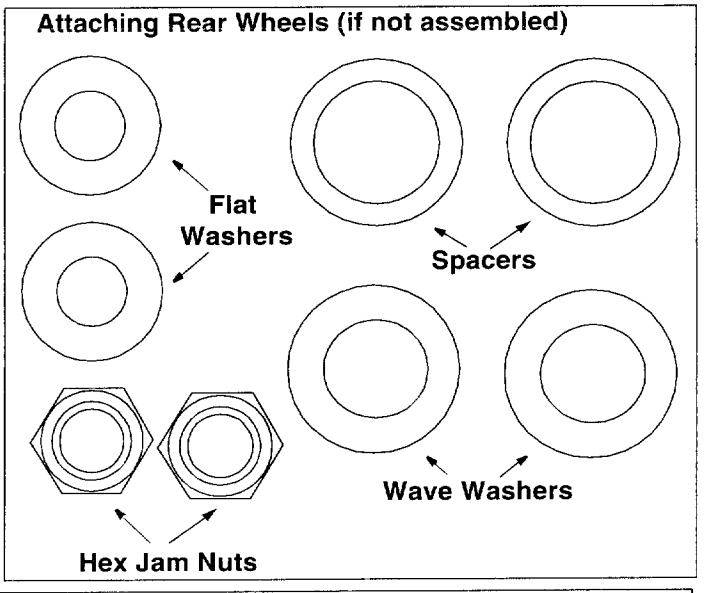
NOTE: Make sure not to crimp the cables while removing the loose parts or the entire unit from the carton.

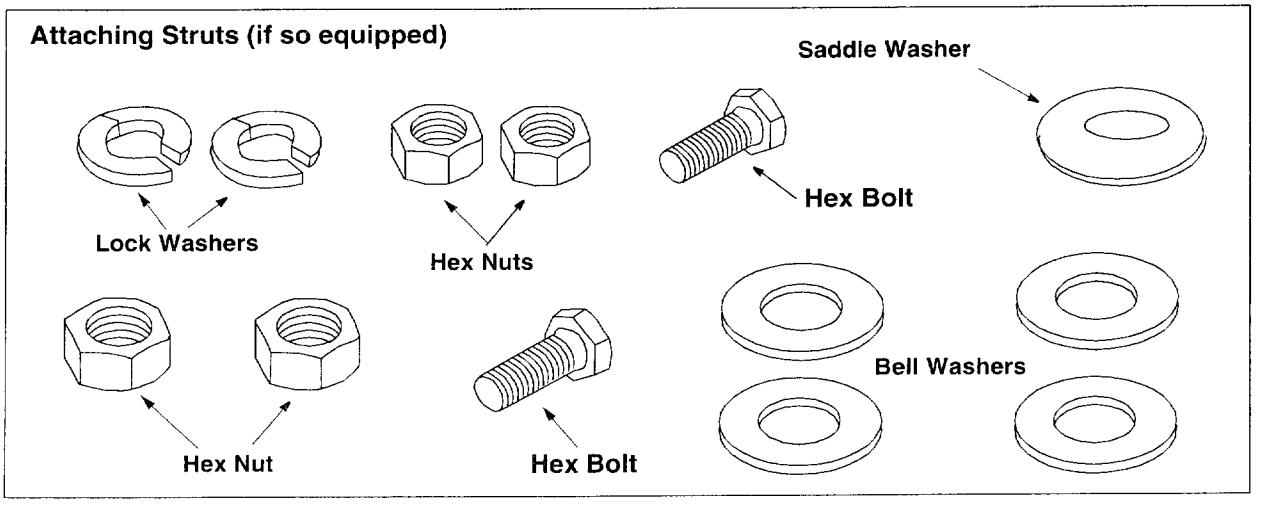
NOTE: Reference to right or left hand side of the mower and/or front or behind the mower is observed from the operating position.

SECTION 6: CONTENTS OF HARWARE PACK

Locate the hardware pack shipped with your mower. The contents of this hardware pack are illustrated below. For identification purposes, lay out the hardware from the bag and place these on the figure. The hardware pack may contain extra items which are meant for maintenance jobs and not for the initial assembly. Save these carefully for future use.







SECTION 7: SETTING UP MOWER

Tools Required

- Pair of Pliers
- Funnel
- Set of adjustable wrenches

Disconnecting Spark Plug

- Before setting up your lawn mower, disconnect the spark plug wire from the spark plug, and ground it against the engine. See Figure 2.
- Attach rubber boot to a bolt on the engine to ground.

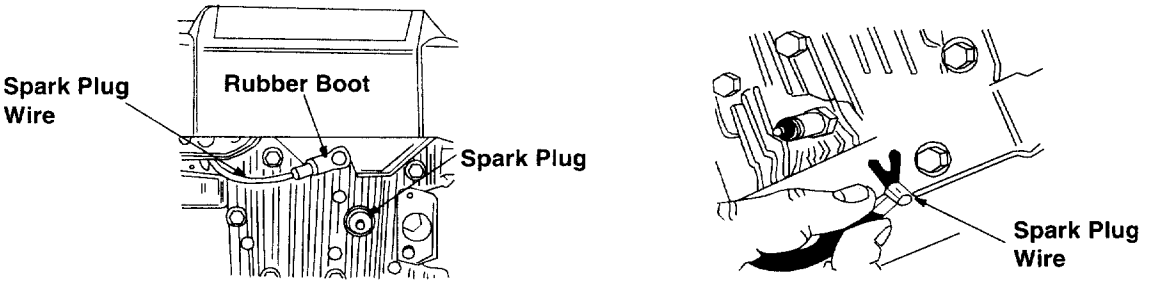


FIGURE 2

Assembling Handle

- Raise the lower handle in the direction shown in Figure 3A till it snaps into place.

Note: Make sure to route the cable(s) inside the lower handle. Also do not crimp the cable(s) while lifting the handle up.

For shipping purposes, the hairpin clip is placed in the outer hole of the weld pin on the lower handle.

- Remove the hairpin clip from the outer hole of the weld pin.
- Using a pair of pliers, insert the hairpin clip into the inner hole in the weld pin. Repeat on other side. See Figure 3 inset A.
- Raise the upper handle in the direction shown in Figure 3. Tighten the wing nuts which are already on the handle.
- Attach the cable(s) to the lower handle with the two cable ties provided. Pull tight the cable ties and cut off the extra. See inset B below.

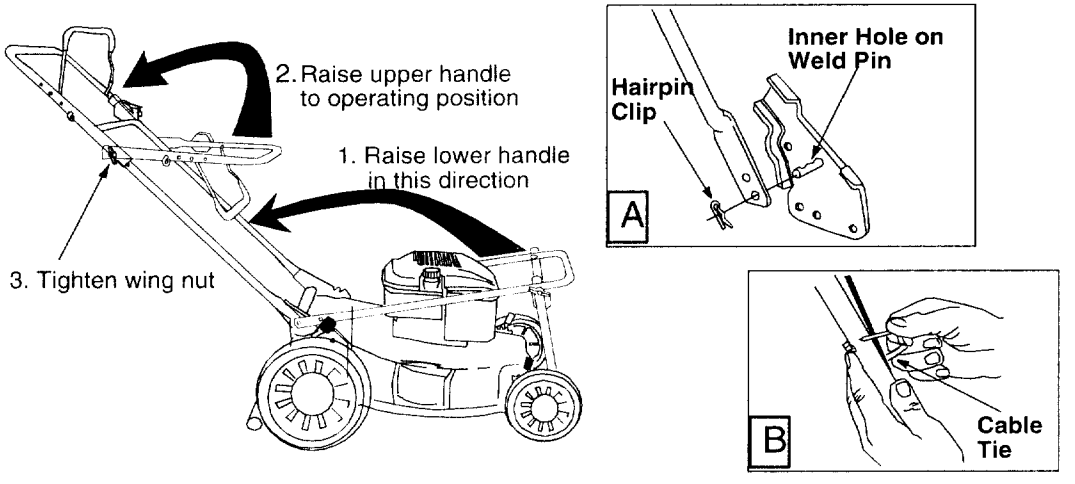


FIGURE 3

Installing Front Wheels

- Block the front of the mower up securely.
- Insert front axle bolt through front wheel. Place cupped washer on axle bolt (crowned side against the wheel). Insert axle bolt into pivot bar, using the hole shown in Figure 4. Tighten securely.
- Assemble the other front wheel in the same manner.
- Move the block from the front of the mower to the rear.

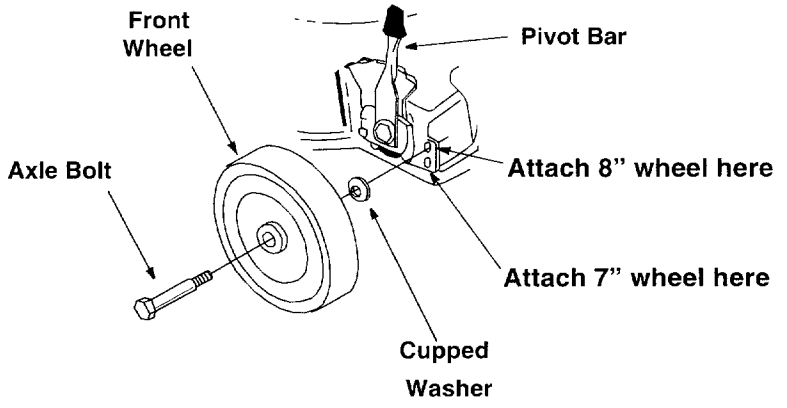


FIGURE 4

Installing Rear Wheels and Axle Shaft

If the rear wheels of the mower are not already assembled but seperately packed, proceed as follows.

- Move rear cutting height adjusters to the highest position.
- The rear axle shaft has a right side and a left side. The right side has two tabs and the left side has one tab. See Figure 5.

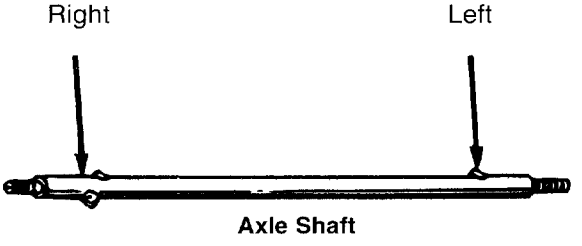


FIGURE 5

IMPORTANT: There are two holes on the pivot bar. You will have to attach the axle shaft through the top hole of the right pivot bar when installing 16" diameter wheels, and through the bottom hole when installing 14" diameter wheels. Use the same corresponding holes on the left pivot bar. See Figure 6 inset.

- Slide the left side of the rear axle shaft through the right pivot bar (pivot bar with keyed hole).
- Rotate the axle shaft until first tab on the right side of the axle shaft clears the hole in the right pivot bar. Rotate further until second tab on the right side of the axle shaft locks into the hole in the same pivot bar. The tab on the left side of the axle shaft should hit on the surface of the left pivot bar. See Figure 6.
- Place one spacer on the rear axle, then one wave washer.
- Place wheel assembly on end of axle. Secure with one flat washer and one hex jam nut. See Figure 6. Tighten securely.
- Repeat above steps to assemble the other wheel.

- Remove the block from the rear of the mower.
- Place all four height adjusters in the same relative position.

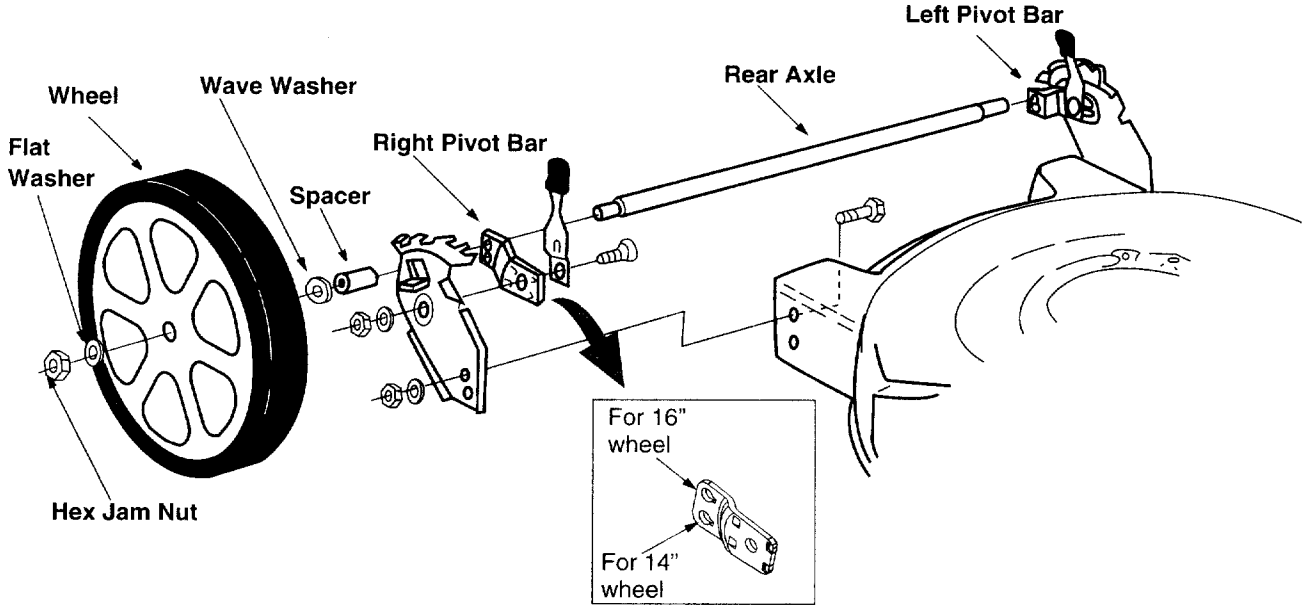


FIGURE 6

Attaching Struts (If so Equipped)

- Once the upper handle is secured, remove the wing nut from one side of the handle and discard.
- Holding the carriage bolt that is already placed on the handle, place saddle washer, and then strut over the carriage bolt.
- Place the lock washer and the hex nut over the bolt threading only a few turns, just enough to hold the handle. Do not overtighten at this time.
- Repeat on other side. See Figure 7.

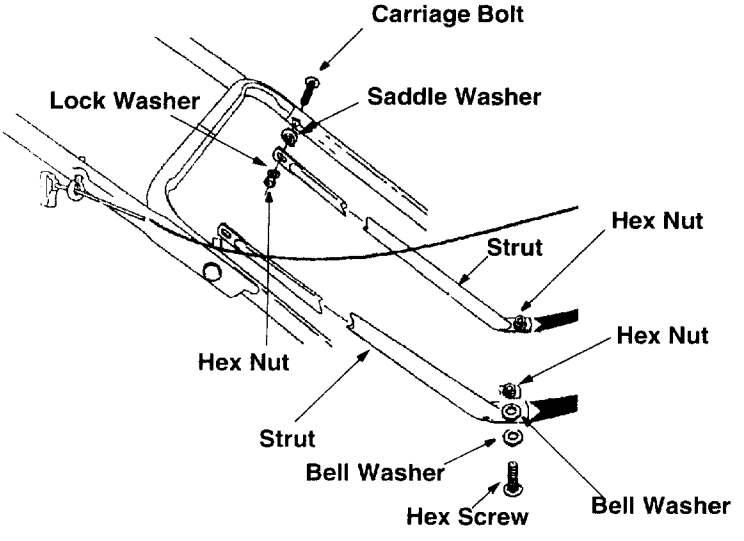


FIGURE 7

Attach the other end of struts as follows:

- Place one flat washer over carriage bolt.
- Insert carriage bolt up through hole in deck beside the engine and through the strut. Secure with lock washer and hex nut from the hardware pack. Repeat step on the other side. See Figure 8.

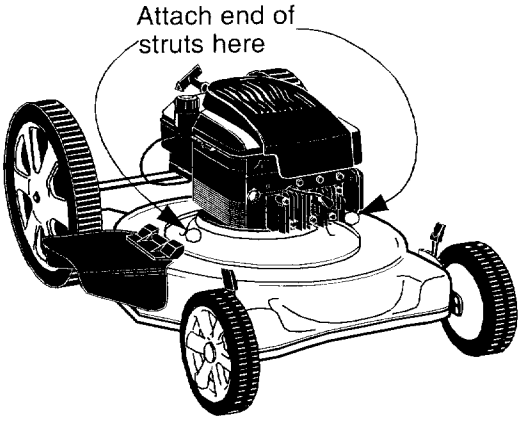


FIGURE 8

- Tighten all nuts and bolts on both ends of the strut securely.
- Insert one cable tie to secure all the cables together, and another cable tie to the lower handle to hold all the cable(s) in place.

Attaching Starter Rope

The rope guide is already attached to the right side of the upper handle of your mower. See Figure 9.

- With the spark plug wire disconnected and grounded, hold the blade control handle against the upper handle, and pull the starter rope out of the engine.
- Slip the rope through the rope guide. Tighten the wing nut holding the rope guide to the upper handle.

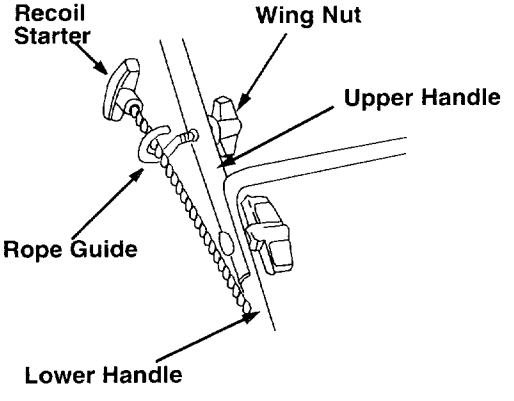


FIGURE 9

Removing Chute Retainer

The chute deflector on your mower is held in an upright position by a retainer for shipping purposes only. Remove the retainer, following steps below, before running the mower for the first time.

- Push the chute deflector up and towards the engine. Holding the deflector in this position, remove the retainer. See Figure 10.

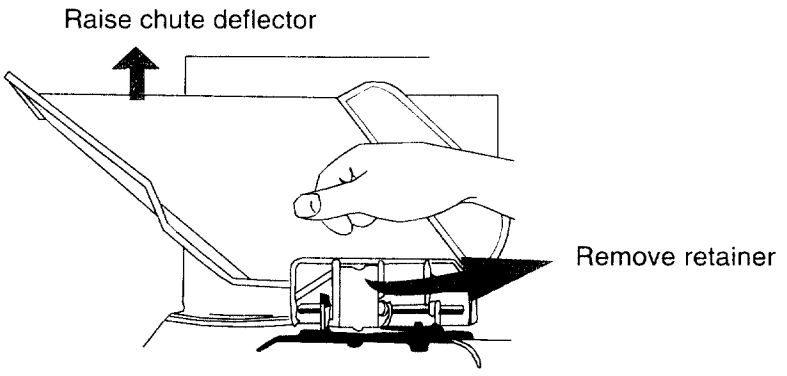


FIGURE 10

- Lower the chute deflector carefully to its operating position **keeping your fingers out of the way**.

WARNING: The chute retainer must be removed and discarded before operating the mower.

Installing Mulching Baffle

If your mower is equipped with the optional mulching baffle, install it following instructions below. For all other mowers in this series, a mulching kit is available. To purchase a mulching kit, please call 1(800) 800-7310 and order by part number (OEM-190-115).

- Insert the mulching baffle so that the notches at the bottom of the baffle sit firmly on the lip of the deck opening. See Figure 11.
- Slide the hooks of the baffle over the hinge pin on the discharge chute. Make sure that the hooks snap into place, locking the mulching baffle firmly on to the mower.
- Release the chute deflector.

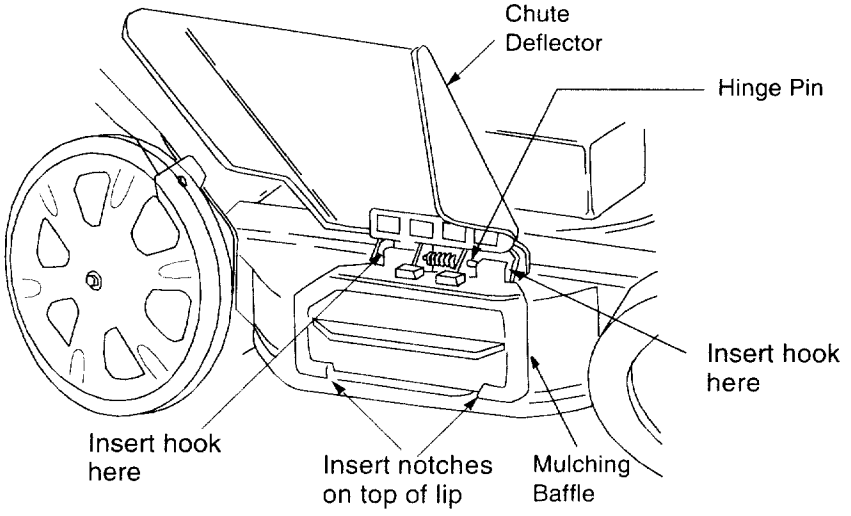


FIGURE 11

IMPORTANT: This unit is shipped WITHOUT GASOLINE or OIL. Be certain to service engine with gasoline and oil as instructed in the separate engine manual before operating your mower.

SECTION 8: CONTROLS

Read this owner's manual and safety rules before operating your lawn mower. Compare the illustrations in Figure 12 with your lawn mower to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.

The operation of any lawn mower can result in foreign objects being thrown into the operator's eyes thus causing severe eye damage. **Always wear safety glasses** while operating the mower, or while performing any adjustments or repairs on it.

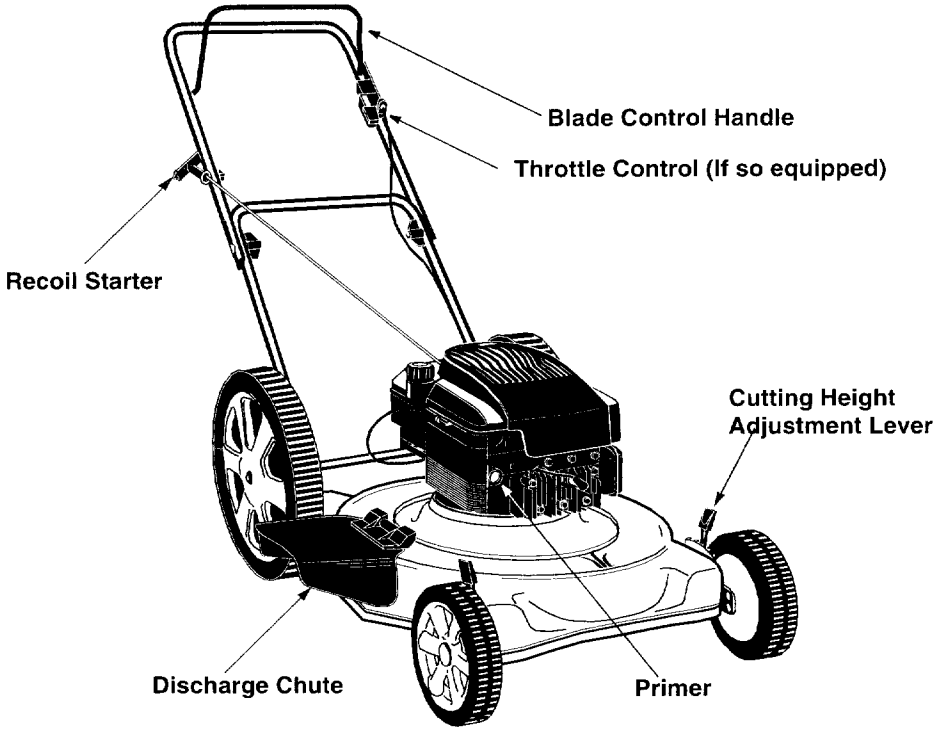


FIGURE 12

Recoil Starter

The recoil starter is attached to the handle. Stand behind the unit and pull the recoil starter to start the unit.

Primer

The primer is used to pump gas into the carburetor. Use it to start a cold engine, but do not use it to restart a warm engine after short shutdown. Refer to engine manual for illustration.

Blade Control Handle

WARNING: This control mechanism is a safety device. Never attempt to bypass its operations.

The blade control handle is located on the upper handle of the mower. The blade control handle must be depressed in order to operate the unit. Release the blade control handle to stop the engine and the blade.

Optional Throttle Controls

The throttle control is used to regulate engine speed. Your unit may be equipped with one of three throttle controls. Follow the instructions which pertain to your unit.

- The throttle control is located on the left side of the upper handle.
- The throttle control is located on the engine.
- The engine has a constant speed throttle which is set at full throttle for maximum performance.

WARNING: The throttle control cannot be used to stop the engine. If your throttle control is located on the engine, do not adjust the throttle control with the engine running.

SECTION 9: OPERATION

Gas And Oil Fill-Up

Oil:

- Only use high quality detergent oil rated with API service classification SF, SG or SH. Use SAE30 oil; *do not use* 10W40 oil.
- Fill oil sump and check the oil level following steps below.
  a. Position the mower on level ground and clean area around oil fill plug.
  b. Remove oil fill plug and dipstick. Wipe dipstick clean, insert it into oil fill hole and tighten securely.
  c. Remove dipstick and check oil level. If the oil is not upto FULL mark on the dipstick, pour recommended oil through the oil fill and check the level again.
- Install oil fill plug and dipstick, tighten securely.

NOTE: Although multi-viscosity oils (5W30, 10W30, etc.) improve starting in cold weather, these multiviscosity oils will result in increased oil consumption when used above 32°F. Check the oil level more frequently to avoid possible engine damage from running low on oil.

Gasoline

WARNING: Never fill fuel tank indoors, or when engine is running or hot. Do not smoke when filling up the fuel tank.

- Clean area around fuel cap. Remove cap. Use a funnel to prevent spillage.
- Pour approximately 1.5 quarts of fresh, regular grade, unleaded gasoline slowly to the fuel tank.

IMPORTANT: Never mix engine oil with gasoline.

- Fill tank to 1/2" below the bottom of the filler neck. Wipe any fuel spillage. **Do not fill** fuel tank completely. Provide space for fuel expansion.

Starting Engine

WARNING: Be sure no one other than the operator is standing near the lawn mower while starting engine or operating mower.

Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains carbon monoxide, an odorless and deadly gas.

Keep hands, feet, hair and loose clothing away from any moving parts on engine and lawn mower.

- Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug wire is fastened securely over the metal tip on the spark plug.
- Move throttle control to FAST position.
- Push primer three times. Wait about two seconds between each push. In cold weather around 55° F or below, prime five times. Do not prime to restart a warm engine after a short shutdown.
- Grasp starter handle and pull rope out slowly until engine reaches the start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly. Pull rope with a rapid, continuous, full arm stroke. Keeping a firm grip on the starter handle, let the rope return to the starter slowly.

Stopping Engine

- Release blade control handle to stop the engine and the blade.
- Disconnect spark plug wire and move away from spark plug to prevent accidental starting.

Using Your Lawn Mower

- **Do not** operate the mower without the mulching cover or the discharge chute properly installed and tightly secured.
- Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. Such objects could be accidently thrown by the mower in any direction and cause serious personal injury to the operator and others.
- *For best results, do not cut wet grass* because it tends to stick to the underside of the mower, preventing proper discharge of grass clippings, and could cause you to slip and fall. New grass, thick grass or wet grass may require a narrower cut. Walking speed should be regulated to the condition of the lawn.
- The *best mowing pattern* is one that allows the clippings to discharge towards the uncut part of the lawn. This permits recutting of the clippings to further pulverize them. When cutting high weeds, discharge towards cut portion, then recut at right angles to first direction.
- For a *healthy lawn*, always cut off one-third or less of the total length of the grass. Lawn should be trimmed in fall as long as there is growth.
- This mower is designed to run at full throttle to give you the *best cut* and do the most effective job of bagging the cut grass.

WARNING: If you strike a foreign object, stop the engine. Remove spark plug wire from spark plug, thoroughly inspect the mower for any damage. Repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

Adjusting Cutting Height

Refer to the SERVICE & ADJUSTMENTS section of this manual for instruction on how to adjust the cutting height and the handle height.

- For best results in mowing, keep the cutting height position high until it is determined which height is best for your lawn.

SECTION 10: MAINTENANCE

WARNING: Always stop the engine and disconnect the spark plug wire before performing any maintenance or adjustments.

Lubrication

For complete lubrication chart, see Figure 13.

Wheels

- Lubricate the wheels and bearings, if so equipped, at least once a season with light oil or engine oil. Also, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with light oil.

Chute Deflector

- Lubricate the torsion spring and the pivot point on each end of the chute deflector using a light oil. This will prevent rusting and ensure that the deflector, which is a safety device, can always work properly.

Engine

- Follow the engine manual instructions and recommended schedule for lubricating engine components.

Pivot Points

- Lubricate the pivot points on the blade control handle, brake cable and the cutting height adjustment lever at least once a season with light oil. The blade control handle must operate freely in both directions. The cutting height adjustment levers should be able to move easily.

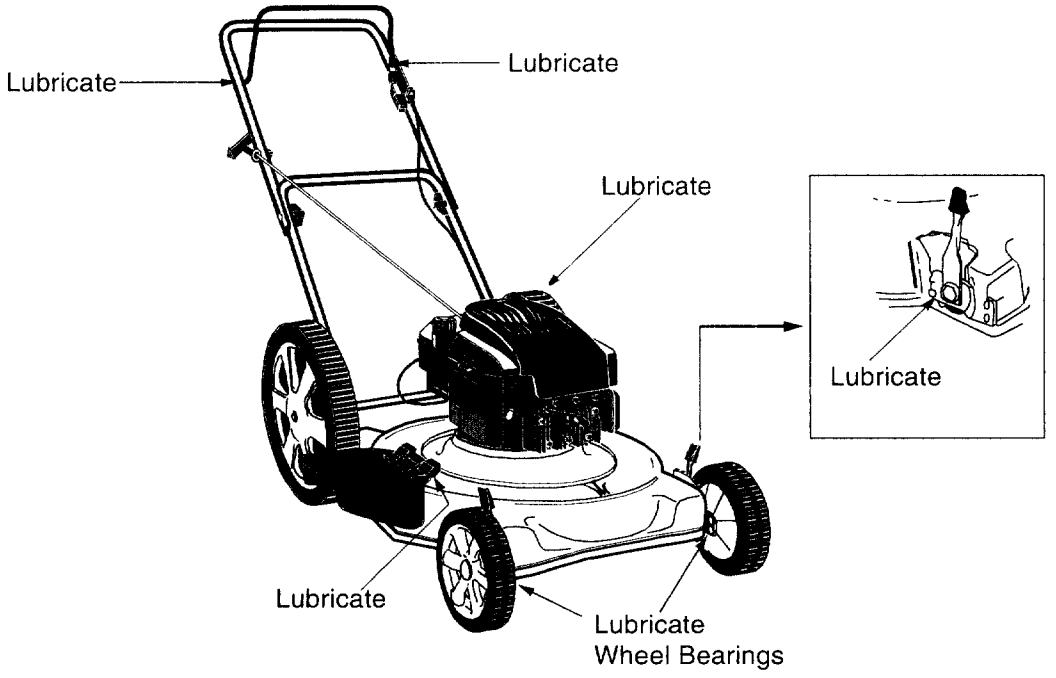


FIGURE 13

Cleaning Mower

The underside of the mower deck should be cleaned after each use to prevent any build-up of grass clippings, leaves, dirt, or other debris. If this debris is allowed to accumulate, it will result in rust and corrosion.

- Disconnect spark plug wire.
- Drain the gasoline from the lawn mower, or place a piece of plastic under the gas cap.
- Tip the mower so that it rests on the housing. Keep the side with the air cleaner facing up. Hold the mower firmly.
- Scrape and clean the underside of the deck with a suitable tool. Do NOT spray with water.
- Put the mower back on its wheels on the ground. If you had put plastic under the gas cap, make sure to remove it now.

WARNING: Never tip the mower more than 90 degrees and do not leave the mower tipped for any length of time. Oil can drain into the upper part of the engine causing a starting problem.

Engine Maintenance

- A list of key maintenance jobs required for good performance by the mower is given below. Follow the accompanying engine manual for detailed list and instructions.
- Change engine oil after the first two operating hours and every 25 operating hours thereafter. Check the oil level before starting the engine every time.
- Service foam filter in the air cleaner every 25 hours of use and replace the paper filter component every 100 hours. You may have to service the air filter more frequently if you are operating the mower under extremely dusty conditions.
- Clean the engine periodically. Remove dirt and debris with a cloth or brush. We do not recommend using a garden hose to clean mower unless the muffler, air filter and the carburetor are covered to keep water out. Water in engine can shorten engine life.

- Clean the spark plug and reset the gap to .030" at least once a season or every 50 hours of operation. Spark plug replacement is recommended at the start of each season. Refer to the engine manual for correct spark plug type.
- Inspect muffler periodically, and replace if necessary. Damaged mufflers or spark arresters can create a fire hazard. Make sure to avoid muffler and surrounding areas while the mower engine is hot because temperature of these areas of the engine may exceed 150° F.

SECTION 11: SERVICE & ADJUSTMENTS

Blade Care

Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

WARNING: When removing the cutting blade for sharpening or replacement, protect hands by using heavy gloves or a rag to grasp the cutting blade.

- Disconnect spark plug wire from spark plug.
- Turn mower on its side making sure that the air filter and the carburetor are up.

To Remove Blade

- Remove the bolt and blade bell support which hold the blade and adapter to the engine crankshaft. See Figure 14A.
- Remove the blade and adapter from the crankshaft.

To Replace Blade:

- Before reinstalling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil.
- Install the blade adapter on the crankshaft with the "star" away from the engine. See Figure 14A.

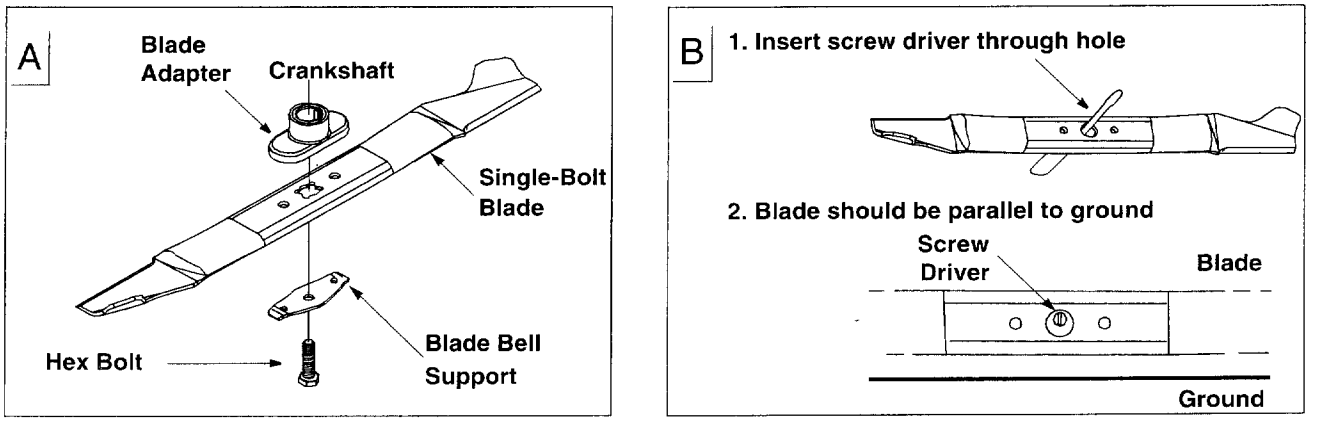


FIGURE 14

- Place the new blade with the side marked bottom (or with part number) facing away from the adapter.
- Place the bell support next. Make sure to align the tabs in the holes of the blade with the hole in the bell support.
- Insert the hex bolt through the blade assembly. Figure 14A shows the correct order of assembly.
- Use block of wood to hold blade again while you tighten the bolt clockwise. Follow the recommended torque for the bolt which is 450-600 in/lbs.

IMPORTANT: The bolt, used to secure the blade to the engine, is specially heat-treated. **Do not substitute.** To order replacement bolt, refer to the Parts List section of this manual.

WARNING: To ensure safe operation of your unit, all nuts and bolts must be checked periodically for correct tightness.

› Sharpen Blade:

- The blade can be sharpened with a file or on a grinding wheel. Do not attempt to sharpen while blade is on the mower.
- Follow the original angle of grind as a guide. Make sure that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade.

)TE: An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to ɜ mower and could break, causing personal injury. Test the blade by balancing it on a round shaft screwdriver or ɔlade balancer. See Figure 14B.

- If the blade is not balanced, remove metal from the heavy side until it balances evenly.

djusting Handle Height

›ur mower is shipped with the handle in the higher height position. To lower the handle height, proceed as follows.

- Remove the starter rope from the rope guide.
- Remove the upper handle by removing the hand knobs and carriage bolts. Lay the upper handle out of the way, being careful not to bend or kink the cable(s).
- Remove the hairpin clips from the weld pins on the handle brackets. Refer to Figure 3 inset. Press out on the legs of the lower handle. Remove lower handle from the mower.
- Turn the lower handle around so the notch on the bottom of the lower handle is facing forward as shown in Figure 15. Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.

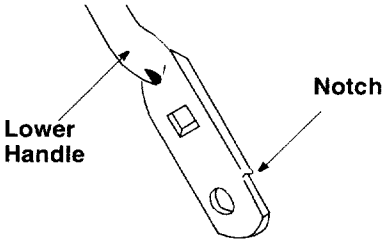


FIGURE 15

- Reassemble the upper handle to the lower handle.
- Place the hairpin clips in the inner holes in the weld pins and attach the starter rope as instructed in the Assembly section.

ɪjusting Cutting Height

PORTANT: All wheels must be placed in the same relative position. For rough or uneven lawns, move the ight adjustment lever to a higher position. This will help stop scalping of the grass.

adjusting plate and thumb lever at each wheel position provides cutting height adjustment. Each adjusting plate s nine height positions. Height of cut will be changed when the thumb lever is moved from one hole to another. e Figure 16. Simply depress the lever towards wheel and move lever assembly to desired position. For rough or even lawns, move the height adjustment handles to higher cutting height position.

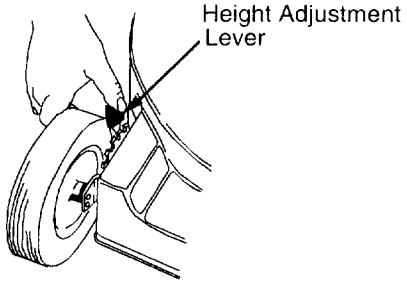


FIGURE 16

Adjusting Carburetor

NOTE: A dirty air cleaner may cause an engine to run rough too. So make sure that the air cleaner is clean and attached to the carburetor *before* deciding to adjust the carburetor.

To adjust the carburetor, please follow the recommendations and instructions on carburetor adjustment in the engine manual that was shipped with your mower.

WARNING: If any adjustments are made to the engine (e.g. carburetor) while the engine is running, keep clear of all moving parts. Be careful of heated surfaces like the muffler.

SECTION 12: OFF-SEASON STORAGE

Prepare your lawn mower for storage at the end of the season or **if the unit will not be used for 30 days** or more. Store the mower in **a clean, dry area**.

Mower

- Clean underside of the mower following instructions in the Maintenance section of this manual.
- Inspect and replace/sharpen blade, if required. Refer to the Maintenance section of this manual for blade care instructions.
- Lubricate mower following the lubrication chart in Figure 13 on page 15.
- You can fold your mower's handle for convenient storage as follows:
  a. Remove the starter rope from the rope guide.
  b. Loosen the two hand knobs on the sides of the handle, and let the upper handle fold down to the rear.
  c. Move the hairpin clips to the outer hole in the weld pins on the handle mounting brackets.
  d. Spread the sides of the lower handle, and push it forward and down.

NOTE: When folding the handle for storage or transportation, be careful not to bend or kink the cables.

Engine

- Follow recommendations in the accompanying engine manual for off-season storage of the engine.
- Change oil as instructed in the seperate engine manual. For instructions on how to change oil, refer to the engine manual.
- Clean engine and remove any grass clippings, dirt, or chaff from the exterior of the engine.
- Remove any dirt or debris from cooling fins, air intake screen, levers, and linkage.

Other

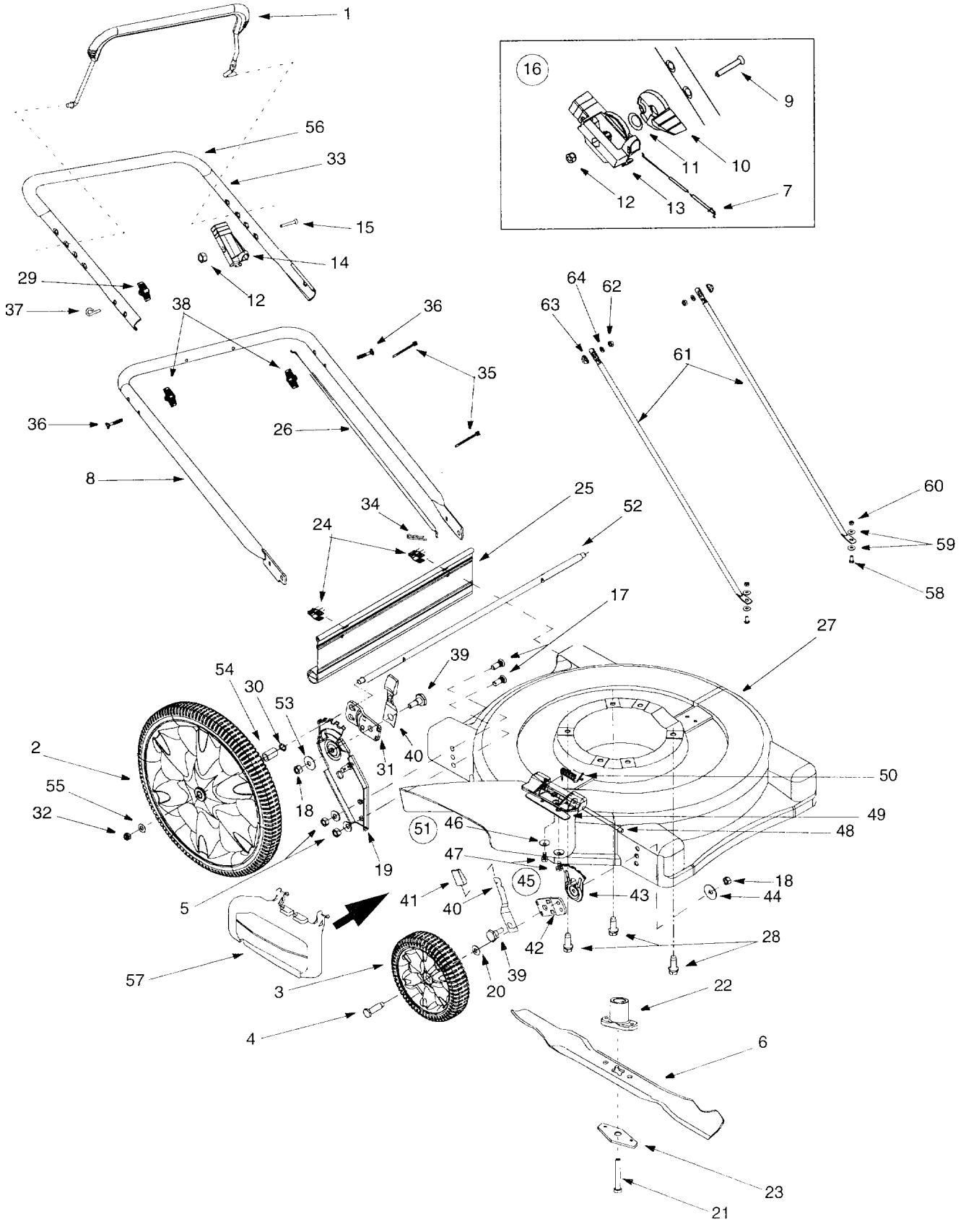
- Do not store gasoline from one season to another.
- Replace your gasoline can if it starts to rust (a plastic gas container is recommended). Rust and/or dirt in the gasoline will cause problems. Store unit in a clean, dry area. Do not store next to corrosive materials, such as fertilizer.

NOTE: If storing in an unventilated or metal storage shed, be certain to rustproof the equipment by coating with a light oil or silicone.

SECTION 13: TROUBLE-SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Engine fails to start	1. Blade control handle disengaged 2. Spark plug wire disconnected 3. Throttle control lever not in starting position 4. Fuel tank empty, or stale fuel 5. Blocked fuel line 6. Faulty spark plug 7. Engine flooded	1. Engage blade control handle. 2. Connect wire to spark plug. 3. Move throttle lever (if equipped) to correct position. 4. Fill up tank with fresh gasoline. 5. Clean fule line. 6. Clean, adjust gap, or replace. 7. Crank engine with throttle (if equipped) in SLOW (turtle).
Engine runs erratic	1. Spark plug wire loose 2. Blocked fuel line or stale fuel 3. Vent in gas cap plugged 4. Water or dirt in fuel system 5. Dirty air cleaner	1. Connect and tighten spark plug wire. 2. Clean fuel line, fill tank with clean, fresh gasoline. 3. Clear vent. 4. Drain fuel tank. Refill with fresh fuel. 5. Clean air cleaner. Refer to engine manual.
Engine overheats	1. Engine oil level low 2. Air flow restricted	1. Fill crankcase with proper oil. 2. Clean lawn mower engine.
Occasional skip (hesitates) at high speed	1. Spark plug gap too close	1. Adjust gap to.030 inches.
Idles poorly	1. Spark plug fouled, faulty, or gap too wide 2. Dirty air cleaner	1. Reset gap to .030 inches or replace spark plug. 2. Clean air cleaner .
Excessive vibration	1. Cutting blade loose or unbalanced 2. Bent cutting blade 3. Bent engine crankshaft	1. Tighten blade and adapter, balance blade. 2. Replace blade. 3. Contact your nearest service center.
Mower will not mulch grass	1. Engine speed too low 2. Wet grass 3. Excessively high grass 4. Dull blade	1. Move throttle lever (if equipped) to FAST (rabbit) position. 2. Wait until later to cut. 3. Mow once at a high cutting height, then mow again at desired height. Make a narrower cutting swath (1/2) width. Do not cut off more than 1/3 of the total length. 4. Sharpen or replace blade.
Uneven cut	1. Wheels not in same height position 2. Dull blade	1. Place all four wheels in same relative height position. 2. Sharpen or replace blade.

Models 500-509



Models 500-509

Ref. No.	Part No.	Description
1.	747-0824	Std. Control Handle
	647-0004	Deluxe Control Handle (shown)
	747-0615	Control Handle (Model 508L022 only)
2.	734-1864	Rear Wheel Assembly (shown)
	734-1842	Aero Gray with Ball Bearings
3.	734-1781	Front Wheel w/o Bearimg (shown)
	734-1841	Front Wheel w/ Plastic Bearing
	741-0262	Plastic Bearing Only
4.	738-0102	Front Axle Bolt
5.	712-0328	Hex Nut 3/8-24 Thd.
6.	742-0642	Blade, 22"
	742-0742	Mulching Blade, 22" (Optional)
7.	746-0842	Throttle Cable 51" (Optional)
	746-0847	Throttle Cable 42" (Optional)
8.	749-0928	Lower Handle
9.	710-0605	Oval C-Sunk Mach. Scr.
10.	746-0876	Throttle Lever (Optional)
11.	736-0501	Spring Lever (Optional)
12.	712-0324	Hex Lock Nut 1/4-20 Thd.
13.	646-0875	Throttle Body (Optional)
14.	746-0883	Control Cable Housing
15.	710-1270	Screw, 1/4-20 x 1.3
16.	811-00185	Throttle Box Comp. (includes ref. 9,10, 11, 12, 13) (Optional)
17.	710-0793	Ribbed Neck Bolt 3/8-24 x 80"
18.	712-0798	Hex.Nut 3/8-16 Thd.
19.	682-0518	Handle Bracket Ass'y—R.H.
	682-0517	Handle Bracket Ass'y. —L.H.
20.	736-0105	Bell Washer
21.	710-1044	Hex Bolt 3/8-24 x 1.5"
22.	748-0376C	Blade Adapter
23.	736-0524A	Blade Bell Support
24.	17098	Hinge Clip
25.	731-1026	Rear Flap Ass'y.
26.	746-0550	Control Cable — 39"
	746-0737	Control Cable — 51"
27.	682-0085	Deck Assembly 22"
28.	710-0654A	Hex Washer Hd. TT Scr.
29.	720-0279	Handle Knob 1/4-20 Thd.
30.	736-0504	Wave Washer

Ref. No.	Part No.	Description
31.	782-0519A	Pivot Bar—L.H.
	782-0520A	Pivot Bar—R.H.
32.	712-3020	Hex Jam Nut 3/8-16 Thd.
33.	749-0538C	Upper Handle
	749-0920A	Upper Handle (Model 508L022)
34.	714-0104	Internal Cotter Pin
35.	726-0240	Cable Tie
36.	710-1174	Curved Hd. Bolt 5/16-18 x 2"
37.	710-1205	Rope Guide
38.	720-0276	Hand Knob
39.	738-0507B	Shoulder Bolt
40.	14832	Spring Lever Assembly w/ Knob
41.	720-0190	Knob only
42.	15202B	Pivot Bar
43.	15261A	Height Adj. Plate
44.	736-0356	Bell Washer
45.	14578	Front Height Adjustment Assembly Comp.—R.H.
	14579	Front Height Adjustment Assembly Comp.—L.H
46.	736-0270	Bell Washer
47.	710-0599	Hex Head Tap Screw, 1/4-20 x .5"
48.	747-0710	Hinge Pin
49.	17032	Adapter Plate
50.	732-0593	Torsion Spring
51.	731-1034	Chute Deflector Ass'y.
52.	738-0878	Rear Axle
53.	736-0331	Bell Washer
54.	750-0151	Spacer
55.	736-3050	Flat Washer
56.	720-0295	Foam Grip (optional)
57.	731-1386A	Mulching Baffle (optional)
58.	710-0751	Hex Bolt 1/4-20 x .620 Gr.5†
59.	736-0270	Bell Washer †
60.	712-0287	Hex Nut 1/4-20 †
61.	749-0939	Strut †
62.	712-0267	Hex Nut 5/16-18 †
63.	736-0451	Saddle Washer †
64.	736-0119	Lock Washer †

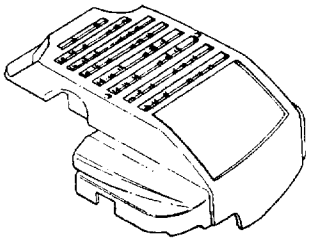
† For units equipped with support struts

AVAILABLE ACCESSORIES

OEM-190-110 Grass Catcher

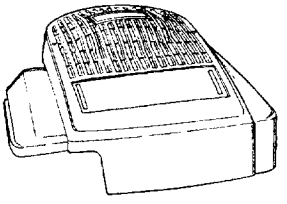
OEM-190-115 Mulch Kit

Shroud Chart



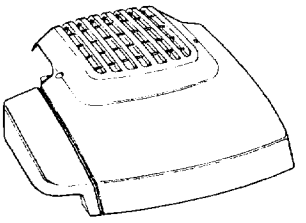
Part No.	Color
751B281439	Dark Red
751B281440	Black
751B281443	Bright Red

Hardware:
710-1256 (Screw)



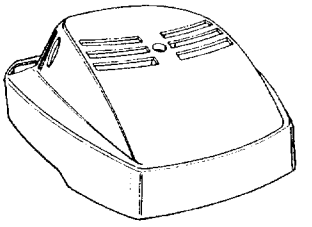
Part No.	Color
731-1395A	Red
731-1396A	Black
731-1397A	Gray

Hardware:
710-1256 (Screw)



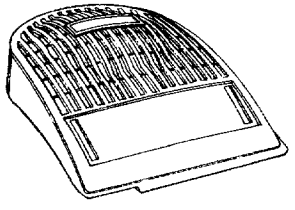
Part No.	Color
731-1402A	Yellow
731-1694	Black
731-1695	Silver
731-1934	Charcoal

Hardware:
710-1258 (Screw)



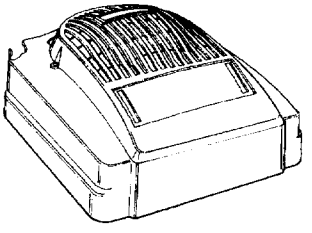
Part No.	Color
7510143208	Black

Hardware:
7510042823 (Screw)



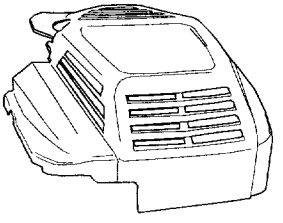
Part No.	Color
731-1585B	Black

Hardware:
710-1274 (Screw)



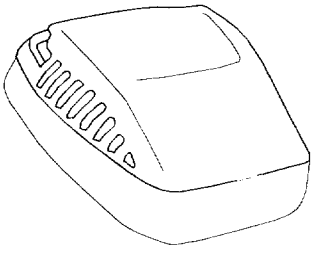
Part No.	Color
731-1586B	Black
731-1612A	Red

Hardware:
7510042823 (Screw)



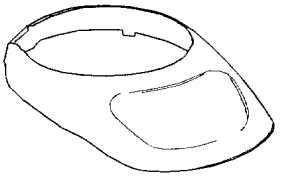
Part No.	Color
751B281451	Gray

Hardware:710-1256



Part No.	Color
751B281476	Black
751B281777	Yellow

Hardware:710-1237



Part No.	Color
7511681311	Black
7511681911	Red
7511682011	Gray

Hardware: - -

MANUFACTURER'S LIMITED WARRANTY FOR:

YARD MACHINES by MTD®

For TWO YEARS from the date of retail purchase within the United States of America, its possessions and territories, MTD PRODUCTS INC will, at its option, repair or replace, for the original purchaser, free of charge, any part or parts found to be defective in material or workmanship. This warranty covers units which have been operated and maintained in accordance with the operating instructions furnished with the unit, and which have not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance or alteration.

Normal wear parts or components thereof are subject to separate terms as noted below in the "No Fault Ninety Day Consumer Warranty" clause.

All normal wear part failures will be covered on this product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear parts failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts are defined as batteries*, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires.

How to obtain service: Warranty service is available, with proof of purchase, through your local authorized service dealer. To locate the dealer in your area, please check the yellow pages or contact the Customer Service Department of MTD PRODUCTS INC, P. O. Box 368022, Cleveland, Ohio 44136-9722. Phone 1 (800) 800-7310. The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by the Customer Service Department of MTD PRODUCTS INC.

Transportation charges: Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser.

Units exported out of the United States: MTD PRODUCTS INC does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD PRODUCTS INC's authorized channels of export distribution.

Other Warranties:

1. The engine or component parts thereof carry separate warranties from their manufacturers. Please refer to the applicable manufacturer's warranty on these items.
2. *Batteries are covered by a 90-day replacement warranty.
3. Log splitter pumps, valves and cylinders or component parts thereof are covered by a one year warranty.
4. All other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, are hereby expressly disclaimed in their entirety.
5. The provisions as set forth in this warranty provide the sole and exclusive remedy of MTD PRODUCTS INC's obligations arising from the sales of its products. MTD PRODUCTS INC will not be liable for incidental or consequential loss or damage.

How state law relates to this warranty: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Certain disclaimers are not allowed in some states and therefore they may not apply to you under all circumstances.

NOTE: This warranty does not cover routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments. Nor does this warranty cover normal deterioration of the exterior finish due to use or exposure.